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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,114	01/17/2002	Levon A. Mitchell	2083.000200/P6639	1644

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EXAMINER

LEFLORE, LAUREL E

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 11/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/052,114

Applicant(s)

MITCHELL, LEVON A.

Examiner

Laurel E LeFlore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2-4,7-9,13-17,29,34-36 and 39-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4,7-9,13-17,29,34-36 and 39-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 7-9, 13-17 and 39-41 are rejected under 35 U.S.C. 102(b) as being anticipated by DeMonte 4,897,652.
3. In regard to claim 7, DeMonte discloses a method for displaying information on a plurality of keys on a keyboard. See column 1, lines 36-38, disclosing, "Another object of the invention is to provide a keyboard using a plurality of keys having selectively activatable symbol display".

DeMonte further discloses receiving a request to change the configuration of the plurality of keys from a first configuration to a second configuration; determining information to display on each of the plurality of keys in the second configuration; and displaying the information on a surface of each of the plurality of keys. See figures 1, 4 and 5 and column 3, lines 9-29, disclosing, "in the present disclosure, the typewriter provides a selector 61 which supplies the control unit (CPU) 62 of the machine with a code indicative of the keyboard associated with the selected language A, B, . . . X... The selector code 61 causes activation of a transcoding routine which converts the position code in respect of the depressed key 20 into a machine code in respect of the symbol introduced. The circuit 50 in turn activates the chips 40 to display at the

displays 31 the symbols associated with each key 20 in the position which belongs to that symbol of the selected keyboard A, B, . . . X." Note that the the surface of each key (20) is operable to be depressed.

DeMonte further discloses that each of the plurality of keys includes a display panel. See figure 1 and column 2, lines 27-30, disclosing, "the cap 125, 25 is transparent or comprises a transparent portion 30 respectively. Fixed below the finger-operable portion of the cap 25, 125 is a liquid crystal display 31 (LCD)". Thus, displaying the information comprises activating one or more pixels of the display panel and displaying video on the display panel of the plurality of keys of the keyboard to display the information, since an LCD inherently has pixels and displays video.

4. In regard to claim 8, DeMonte discloses that the keyboard includes a configuration panel, wherein receiving the request to change the configuration of the plurality of keys comprises detecting a user selection of an option from the configuration panel. See rejection of claim 7 and note selector 61 depicted in figure 4.

5. In regard to claim 9, DeMonte discloses that receiving the request to change the configuration of the plurality of keys comprises receiving the request from a processor-based system coupled to the keyboard. See rejection of claim 7 and note CPU 62 depicted in figure 4.

6. In regard to claim 13, see rejection of claim 7. DeMonte discloses a keyboard comprising a plurality of keys (20), wherein a surface of each of the plurality of keys is operable to be depressed, wherein each of the plurality of keys comprises a surface (25) and a display panel (31) having one or more pixels located on the surface; a control

unit (figure 5) configured to cause a display of a first set of symbols on the plurality of keys in a first mode and a display of a second set of symbols on the plurality of keys in a second mode; and an input interface (keys 20) to receive video data (see figure 5).

7. In regard to claim 14, see rejection of claims 7 and 13.
8. In regard to claim 15, see rejection of claim 7.
9. In regard to claim 16, see rejection of claim 8.
10. In regard to claim 17, DeMonte discloses that the keyboard includes a character map stored in a memory and wherein the control unit is adapted to display the first set of symbols on the plurality of keys in the first mode and second set of symbols on the plurality of keys in the second mode based on the information stored in the character map. See figures 2 and 5 and column 3, lines 61-65, disclosing, "The circuit 50 is provided with memory locations A, B, . . . X where there are stored the bits which define the optical state desired for the individual areas 36 of each keyboard A, B, . . . X."
11. In regard to claim 39, see rejection of claim 7.
12. In regard to claim 40, see rejection of claim 8.
13. In regard to claim 41, see rejection of claim 9.

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 2-4, 29, 30, 34-36 and 43-46 rejected under 35 U.S.C. 103(a) as being unpatentable over DeMonte 4,897,651 in view of Litt et al. 4,752,772.

16. In regard to claim 2, Demonte discloses an invention similar to that which is claimed in claim 2. See rejection of claim 7 for similarities. DeMonte does not disclose that displaying the information further comprises displaying a Braille letter on each of the plurality of keys.

Litt discloses an invention in which a Braille letter is displayed in a keyboard key. See column 2, lines 53-55, disclosing, "a key on the standard keyboard...is modified to incorporate a mechanical Braille display."

Litt further teaches such a key in column 2, lines 45-52, disclosing, "we have eliminated the inherent inefficiencies associated with a separate Braille reading terminal by integrating the reading function into a key of the standard keyboard. As a consequence, a keyboard which incorporates the invention has led to a more effective terminal design for visually impaired users."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of DeMonte by having the information displayed on each of the plurality of keys be a Braille letter display, as in the invention of Litt. One would have been motivated to make such a change based on the teaching of Litt that such incorporation of a Braille letter into keyboard keys eliminated "the inherent inefficiencies associated with a separate Braille reading terminal" and leads "to a more effective terminal design for visually impaired users".

17. In regard to claim 3, see rejection of claim 2. Also see Litt column 2, lines 64-66, disclosing, "When a solenoid is activated, the pin connected thereto rises in the key causing the pin end to extend above the top surface of the key." The top surface of the key is a key cap (See figures 2 and 3, element 12 and column 4, lines 32-34) and thus, displaying information comprises raising one or more pins of the matrix of pins above the key cap to form Braille letters. The pins are formed in a matrix, as disclosed in column 2, lines 59-62, "The ends of the pins rest in holes which pass through the top of the key and which are arranged to yield a two column matrix".

18. In regard to claim 4, Litt discloses that a request is received to change the configuration of the display on the keys to a Braille configuration. See Litt column 3, lines 3-6, disclosing, "To use the key-embedded Braille display...interface circuitry...is used to generate a control signal which drives the solenoids." Thus, a control signal from interface circuitry serves as the request to change configuration.

19. In regard to claim 29, see rejection of claims 2 and 7.

20. In regard to claim 30, Litt discloses that the key comprises a housing for one or more pins of the matrix. See figures 2-4 and column 4, lines 35-36 and 40, disclosing, "Inside the keycap holder 14 is a cavity 18...Within the cavity 18 are eight pins 22." Thus, the keycap holder is a housing for the pins of the matrix. Litt et al. further discloses that the housing comprises an upper coil for causing the pins to rise above the top surface of the key. See figure 2-4 and column 5, lines 54-56, disclosing, "Activation of the solenoid 26 causes the corresponding pin 22 to rise in the holder 14 so that the

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end 22a appears above the top surface 16 of the keycap 12.” See element 51 of figure 2-4, depicting a spring (coil) included in the solenoid.

21. In regard to claim 34, see rejection of claims 2 and 7.

22. In regard to claim 35, see rejection of claim 3.

23. In regard to claim 36, see rejection of claim 4.

24. In regard to claim 43, see rejection of claims 2 and 8.

25. In regard to claim 44, see rejection of claims 2 and 9.

26. In regard to claim 45, see rejection of claims 2 and 8.

27. In regard to claim 46, see rejection of claims 2 and 9.

28. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeMonte 4,897,651 in view of Litt et al. 4,752,772 as applied to claims 29 and 30 above, and further in view of van Namen 5,896,076.

29. In regard to claims 31 and 32, DeMonte in view of Litt discloses an invention similar to that which is claimed in claims 31 and 32. See rejection of claim 30 for similarities. Also see figures 2-4, element 51 and column 5, line 64-67, disclosing a coil used to lower the pin, causing a top portion of the pin to fall to a position in which it is substantially aligned with the top surface of the key when the pin falls to a preselected level (“rest position”). DeMonte in view of Litt does not disclose within the solenoid an upper and lower coil adapted to raise the pin or that energizing the upper coil causes a magnetically movable object to rise below the pins and fall when the upper coil is not charged.



Van Namen discloses a solenoid containing two coils with magnetic operation. See column 6, lines 43-48, which disclose "applying force to the armature...depends on the direction of the current in the coils." Thus, an armature (pin) can be moved with the magnetically utilizing the charging of coils.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the solenoid of DeMonte in view of Litt, making it a magnetically charged solenoid with two coils. One would have been motivated to make such a change based on the statement of Litt (see column 6, lines 45-49), "Although a linear solenoid actuating mechanism has been described herein, it is well known within the art that other alternative actuating mechanisms with appropriate connecting means could be substituted for linear solenoids and produce substantially the same results."

### ***Response to Arguments***

30. Applicant has amended claim 7 to overcome the 35 USC 112, second paragraph, rejection of claim 7 in the paper dated 2 July 2004. The 35 USC 112, second paragraph, rejection of claim 7 is withdrawn.

31. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laurel E LeFlore whose telephone number is (703) 305-8627. The examiner can normally be reached on Monday-Friday 8-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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17 November 2004



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